

FAAM facility for airborne atmospheric measurements

FLIGHT FOLDER



Flight No.: B309
Date: 19 July 2007
Take Off: 12:46:39
Landing: 15:11:18
Flight Time: 2h24m39s

Campaign: COPS

Operating Area: Baden-Baden, Germany

POB	Position	Name	Institute
1	Captain	Al Roberts	Directflight
2	Co-pilot	Ian Ramsay-Rae	Directflight
3	CCM	Dawn Quinn	Directflight
4	Mission Scientist 1	Phil Brown	Met Office
5	Mission Scientist 2	Alan Blyth	UFAM
6	Flight Manager	Steve Devereau	FAAM
7	Cloud Physics	Jim Crawford	FAAM
8	Core Chemistry / CCM2	Doug Anderson	FAAM
9	VACC 1	Angela Dean	Leeds University
10	Mission Scientist 3	John Marsham	Leeds University
11	CPI 1	James Dorsey	University of Manchester
12	CVI	James Bowles	Met Office
13	Nephelometers	Andy Wilson	Met Office
14			
15			
16			
17			
18			
19			
20			

Flight Track:

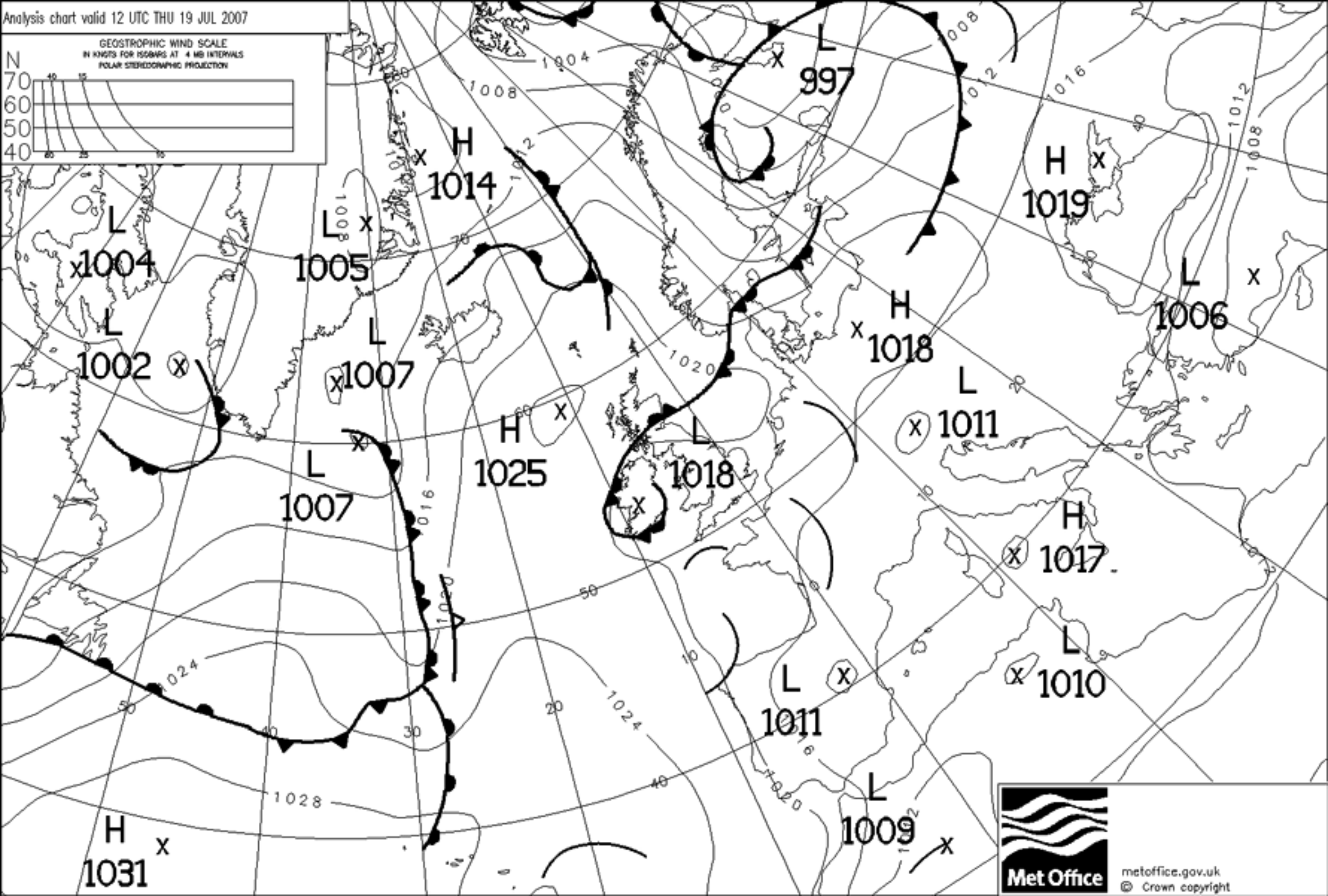
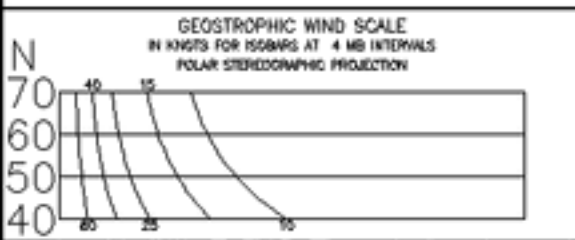
B309 Track 19 JUL 07



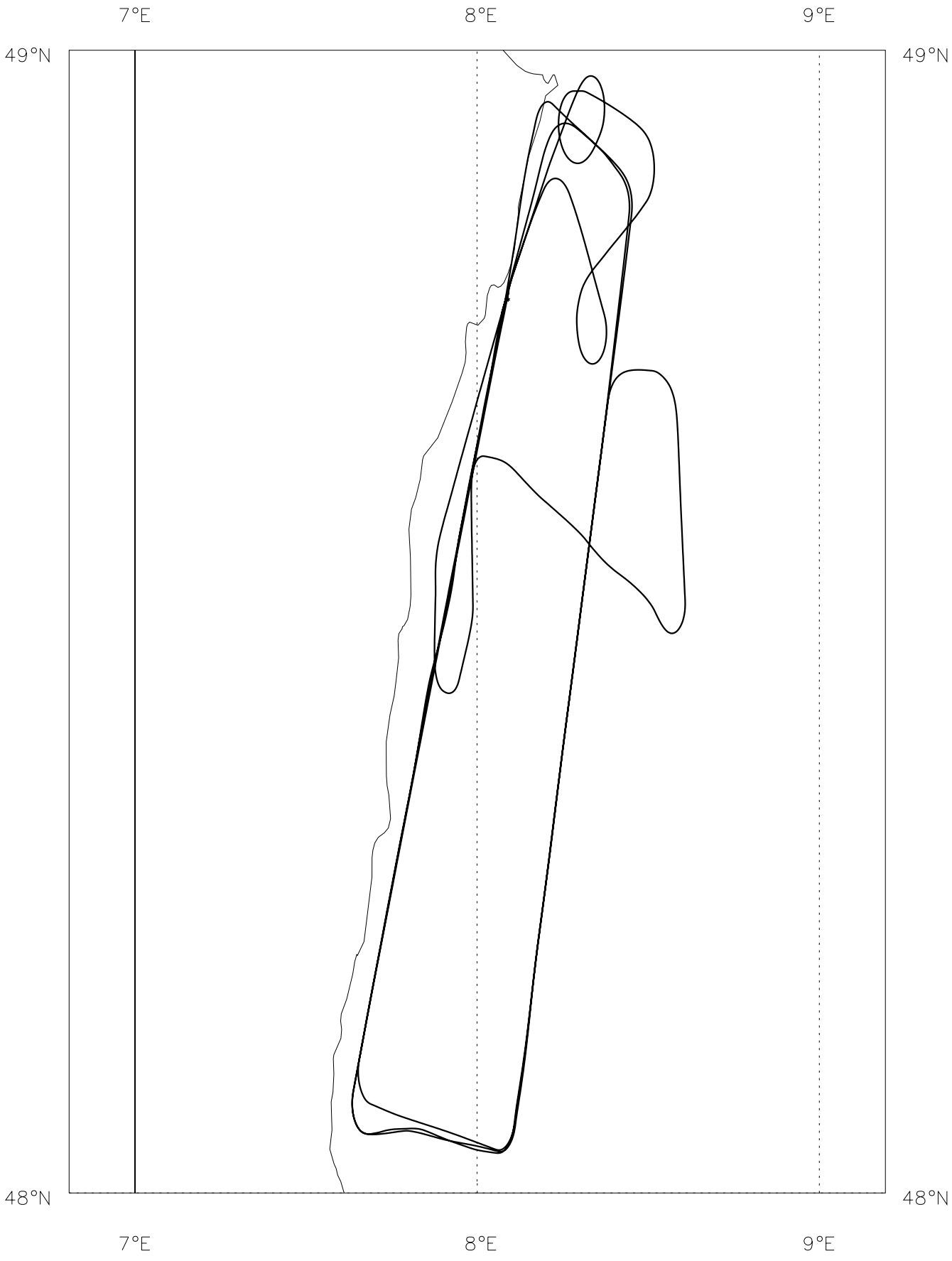
FLIGHT SUMMARY

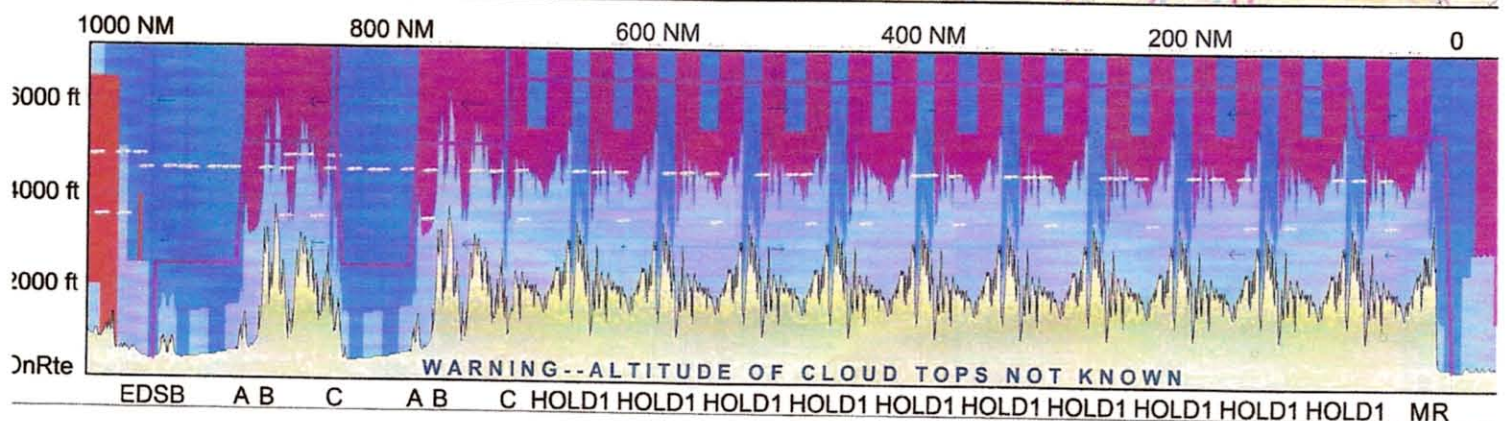
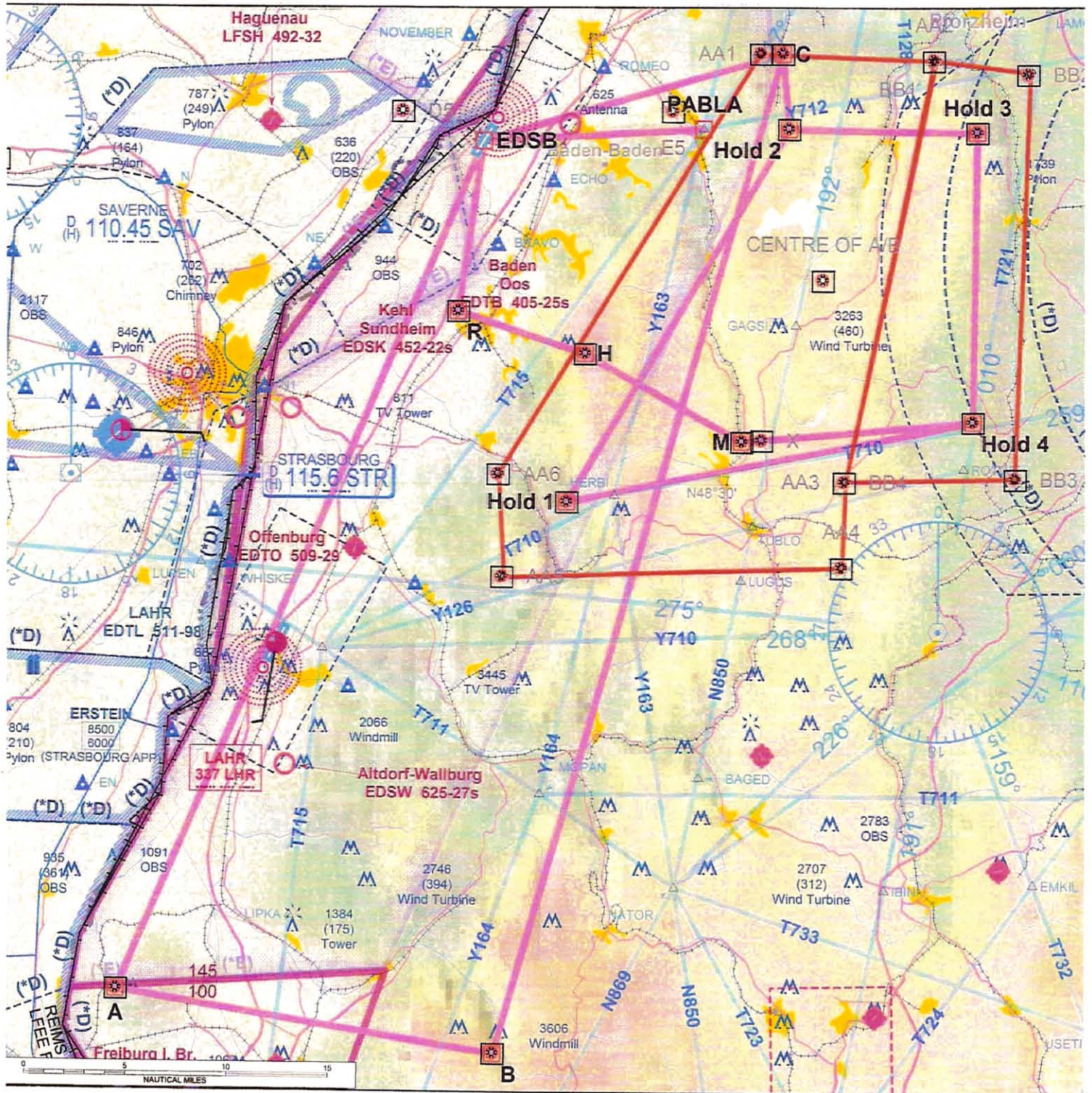
Flight No B309
 Date: 19 June 2007
 Project: COPS
 Location: Baden Baden

Start Time	End Time	Event	Height (s)	Hdg Comments
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094828		Start-Up	0.34 kft	146 48'46.9N, 8'05.33E
122526		event	0.30 kft	146 INU to Nav
124019		event	0.31 kft	147 start taxi
124639		T/O	0.29 kft	032 Baden Baden
125018		event	5.9 kft	152 Nevzd / JW zero
130131		event	6.2 kft	350 JW zero
130305		event	3.7 kft	220 Heimann cal
130401	131804	Run 1.1	3.4 kft	219 run partially in cloud
131900	132117	Profile 1	3.5 - 5.6 kft	099
132208		event	5.6 kft	101 Nevz / JW zero
132317	133520	Run 2.1	5.6 kft	022
133659	133850	Profile 2	5.6 - 4.9 kft	290
134452	134736	Profile 2	4.9 - 2.6 kft	205
134736	135419	Run 3.1	2.6 kft	211
135501	135753	Profile 3	2.7 - 5.6 kft	089
135938	141151	Run 4.1	5.6 kft	013
141348	141645	Profile 4	5.6 - 3.4 kft	288
141634		Video	3.5 kft	213 start FFC RFC tapes 2
141652	142114	Run 5.1	3.4 kft	212
141753		event	3.4 kft	210 Nevz & JW zero
142121	142216	Profile 5	3.4 - 2.6 kft	204
142216	142954	Run 6.1	2.6 kft	202
143050	143401	Profile 6	2.7 - 5.6 kft	095
143535	144510	Run 7.1	5.6 kft	015
145220	145711	Run 8.1	6.5 - 5.4 kft	291 descent to 5500 during run
151118		Land	0.31 kft	032 Baden Baden
151528		Shutdown	0.34 kft	159 48 46.91N 08 05.35E



B309 Track 19-JUL-07





PROJECT BRIEF: COPS - Convective and Orographically-induced Precipitation Study.

Scientific Aims: The goal of UK-COPS is to determine the properties of the aerosols that will likely be ingested into the convective clouds that form over the Black Forest mountains and to understand the formation and growth of ice and precipitation in these clouds . We wish to examine:

- the properties of the representative aerosol particles in the clear air that are transported into the convective clouds
- the concentration and size of cloud droplets just above cloud base
- the formation of the first ice due to primary nucleation on ice nuclei (IN)
- the development of ice via secondary processes such as the Hallett-Mossop process, in which new ice particles are generated during the riming growth of ice particles
- other secondary ice production processes, such as evaporative break-up;
- the production of supercooled raindrops and their role in the glaciation process
- the dependence of these processes on the dynamics of the cloud
- the production of precipitation

There will either be 2 flights per day: one in clear air to measure the properties of the aerosols and one later in the convective clouds; or the two parts will be flown in a single flight. Measurements will be made in cumulus clouds when their tops are about 0°C through to when the tops have grown to about -20°C.

Weather conditions:

Developing showers over the Black Forest mountains, Germany, within Box A and probably B.

Safety: Regions that paint RED on the aircraft weather radar should be avoided. No flight into clouds known to be producing lightning. There may be coordination with the DO-128 in Boxes A and B. The French and German Falcons may also be operating in the area.

Key instruments and their operation:

Basic meteorology

- Rosemount temperatures, GE hygrometer
- GPS, INU, turbulence probe. When in supercooled liquid water, Flight Manager or PIs should monitor turbulence probe and calibrated differential pressures for signs of icing (cessation of variability on signal).

Cloud Physics/Aerosol

- FFSSP, 2DC, 2DP, PCASP, CDP, CIP, SID-1 and SID-2. Normal monitoring to ensure correct operation. Operator should note particular features of interest eg. high concentrations, appearance of pristine ice crystal habits, appearance of large drops ($d > 100 \mu\text{m}$) in 2D imagery when above freezing level.
- CPI as above
- J-W LWC and Nevzorov LWC/TWC. Where straight/level and in clear air, these should be zeroed/calibrated and a note made in the Flight Managers log.
- TWC - profile ascents/descents should avoid cloud if possible
- AMS -
- CVI - below cloud base, normal operation is in aerosol mode; above cloud base, normal operation is in CVI mode
- VACC - in straight and level clear-air, 10 min runs; during cloud work and profiles, single temperature.

Sortie Brief: COPS – Convective and Orographically-induced Precipitation Study
Flight Number: B309
Date: 19 July 2007
Mission Scientists: Phil Brown
TO Time: 15:00 local
In the box: 16:10 local

Sortie Aims: To measure properties of aerosols in the clear air and the development of convective clouds.

Sortie Location: Clear air in Rhine Valley and in convective clouds over Black Forest mountains. Leg over supersites.

Sortie Summary:

1. Characterise properties of aerosols in clear air at low levels.
2. Penetrate cumulus clouds preferably near the top of the cloud in the updraught. All cloud penetrations should be with *wings level*. Two principal options are:
 - A. stationary cloud or system of clouds;
 - B. several cumulus clouds either in area (low wind) or passing through the area.
3. Characterise properties of aerosols in detrainment layers around cloud.
4. Overfly supersites M, H and R.

Sortie Detail:

1. Out-of-Cloud: All changes in altitude at standard rates (1000 ft/min).
 - 2 x Rhine Valley aerosol legs (70 mins)
2. Cloud work:

Note an important feature is to ascend with tops. This requires a non-standard ascent as fast as possible. Relay cloud top info to the DO-128.

Option A: Isolated developing clouds – ascend with the clouds near their top. All penetrations at constant altitude.

- A.1 Proceed to about 0°C or top of cloud.
- A.2 Adjust altitude to about 1000 ft below cloud top and penetrate cloud. The penetration should be made at a constant azimuth and altitude if possible. It is important to penetrate the growing turret in the updraught region. A few seconds after clearing cloud, turn and ascend for return to same region of cloud as quickly as possible using procedure turn.
- A.3 Repeat A.2, ascending with the top (if appropriate) at the end of each penetration out of cloud, until FL200 or FL240, or cloud becomes too developed.
- A.4 Repeat A.1 - A.4 for a new developing cumulus, go to **Option B**, or exit box.

Option B: Many developing cumulus clouds – sample clouds at constant altitude.

- B.1 Proceed to 0°C
- B.2 Commence 10 min runs (turning where appropriate) in along shear direction. Adjust track to randomly sample the updraught regions of growing turrets.
- B.3 Ascend to -5°C (i.e. approximately 3500 ft) and repeat above for 10 min.
- B.5 Repeat for -10°C, -15°C and -20°C if possible.

3. Detrainment layers

Proceed to level where cloud is being detrained from cloud and either make penetrations or circle around the cloud.

4. Leg over supersites Murg Valley (M), Hornisgrinde (H) and Achern (R) at about 5500 ft if in clear air. (15 min)

Mission Scientist's Log

Flight No B. 309 Date 19/7/07 Name Phil Brown Page 1 of

Time (GMT)	Run / Profile	Height	Hdg	GPS Position	Remarks / Observations (cloud type & amount in oktas, weather, visibility, winds, sea state etc.) eg Cirrus 2/8, StratoCu 3/8, hazy, wind 240°/24kts
1231		—			7/8 Cu/Sc over FK13.
1246					1/2 FK13. 1/2 w 03.
—		1700			cloudbase.
		4000			then there seems to be some sort of inversion over the valley.
1302					over valley, stable layer will prevent deep convec from surface.
		3500			Just in top of cloud layer.
1310		"			Cloud top gradually decreasing southbound, and much more broken.
131234		"			Appears to be some Ac/castellans over South BF.
1316		"			Big temperature gradient along valley at this height. ~ 3 degrees over
131804	1.1				End.
131900	P1	3500			
		5500			much more stable End, at S end of leg.
—					inversion at ~ 3500 level, & much drier above this level.
132317	2.1	5700			Start. Deeper Cu tops to N in the box but tops only to this level.
1334		"			Can see fall of Td rise as approach but CWC counts fell.
—		5700			T/Td have come back to levels seen on original climbout.
—		"			wind 7 ms ⁻¹ / 275 deg.
134235		5000			o/h FK13 at 5000 ft.
—		—			SEk picking up T & Td gradients
134736	3-1	2700			below base now.
135130		—			Almost no wind
135419		—			End.

Mission Scientist's Log

Flight No B.....309 Date 19/7/07 Name Page 2 of 2

[illegible]

CLOUD PHYSICS LOG Flight B309

Date: 19/07/07	Operator: JimC	DRS Time: 07:35:00	DAU1 Time: +0	DAU2 Time: +0	DAU3 Time: +0	Aux1 Time: +0	Aux2 Time: +0	Page 1 of 1
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[illegible]

CLOUD PHYSICS PROCESSING LOG

Flight number: B309
Date of flight: 19/07/07

T/O: 12:46:39
Land: 15:11:18

A) FFSSP PROCESSING		To Exeter
Processing Stage	Done?	Comments
1) Transfer *.txt files from DVD to processing PC Bnnn_FFSSP_hh.txt for each hour of data Bnnn_FFSSP_HVMS.txt		hh = Last sec processed =
2) FTP the files (ascii) from the PC to directory PMSDATA: on FLOODS		File size =
3) FLOODS> RUN MRFB:[PMS.FAST_FSSP]FFSSP_EXTRACT_TAS a) Flight number: Bnnn b) Path name: MFDDATA:Bnnn_MFDX c) Output directory: PMSDATA: d) Start time: 0 if unknown (see comment box) e) End time: 240000 if unknown		Use time just before/after take-off/landing. If T/O /landing just after/before the hour, ensure start/end time is before/after the hour if there is an FFSSP_hh.txt file for that hour.
4) FLOODS> RUN MRFB:[PMS.FAST_FSSP]FFSSP_PROCESS_TXT a) Flight number: Bnnn b) Directory: PMSDATA: c) TAS in processing: Y d) Vel threshold (clicks) 0 e) Calibration file: Use the most recent calibration file. Format FFSSP_CALddmmyyyy.txt Calibration files to be stored in MRFB:[PMS.FAST_FSSP] f) Adjust FFSSP time Y/N g) If Y, enter value to add to data time (seconds)		Total glitches = Sec file written ok? Note calibration file used Yes only if gross errors occur in FFSSP time eg; ~ 1hour
5) FLOODS> WAVE a) WAVE> write procffssp_to_m5,'pmsdata:Bnnn_procffssp.dat', 'mfddata:Bnnn_mfdX','pmsdata:Bnnn_m5procffssp',/auto b) WAVE> exit		Use PVWAVE for this section Note time correction applied to FFSSP by /auto =
6) FLOODS> MODIFY a) Modifying datasets: pmsdata:Bnnn_m5procffssp b) Dataset: mfddata:Bnnn_mfdX c) New dataset: mfddata:Bnnn_mfdY (y=x+1) d) Parameter description file: leave blank to use default		Input file size = M5 output file size =
7) CHECKS: i). Are FFSSP and JW/Nevzorov LWC synchronized in time? In flight_plot, parameters JW LWC para 535 Nevzorov LWC para 602 FFSSP LWC para 1202 ii). If not, repeat from step 5b replacing /auto with addt=x which adds x+20 secs to FFSSP time.		Synchronized?

B) 2D PROCESSING		REPROCESS +1hr
Processing Stage	Done?	Comments
1) Transfer Bnnn.dat file from CD/DVD to PC	Y	
2) Zip up file on PC (Bnnn.zip)	Y	
3) FTP the zipped file (binary) from the PC to the directory SEADAS_DATA:[SEADAS_DATA] on FLOODS	Y	8214 blocks
4) Log on to FLOODS		
5) Unzip SEADAS_DATA:[SEADAS_DATA]Bnnn.zip	Y	Size of Bnnn.dat =75742
6) FLOODS> WAVE WAVE> CONVERT_SEADAS_FILE a) Input file: SEADAS_DATA:[SEADAS_DATA]Bnnn.dat b) Output file: SEADAS_DATA:[SEADAS_DATA]Bnnn_seadas.dat WAVE> exit	Y	Use PVWAVE for this section Blocks read = 21537 Blocks written = 21537 Bad reads = 0
7) FLOODS> RUN MRFB:[PMS.SEADAS]READM200_FILE a) Default directory: PMSDATA: b) Flight number: Bnnn c) Disk file name: SEADAS_DATA:[SEADAS_DATA]Bnnn_seadas.dat d) Comment string: e) Start time: <i>0 if unknown (T/O – 5 min)</i> f) End time: <i>240000 if unknown (Land + 5 min)</i> g) Read 2DC: Y h) Read 2DP: Y i) Secondary data: Y j) FSP-SYNC: Y k) cmd.str: Y l) Auto time correction: N m) Full length secondary:N	_AUX = 0	Start = 124000 End = 151500 Ignore error message scroll (vestigial error from tapes) Are FRW, FSP, IMB, PCA,SEC files in PMSDATA? y Are they non-zero in size?
8) FLOODS> WAVE	N	2D image display and printing
i). WAVE> imagedisplay a) 2D directory name: PMSDATA: b) Flight number: Bnnn c) File generation no: 0 d) Time from IWC plot: N e) Select probe: (1) 2DC (2) 2DP f) Start time: <i>As in 7e above</i> g) End time: <i>As in 7f above</i> h) Time interval (sec): 5 recommended (0 for all images)		Must be done from FLOODS itself. Note any problems with images No images Prepare imagery for Core data From own PC again
ii). WAVE> auto_image a) 2D directory name: PMSDATA: b) Flight number: Bnnn c) Enter date: YYYYMMDD d) Enter start time: <i>0 if unknown (T/O – 1 min)</i> e) Enter end time: <i>240000 if unknown (Land – 1 min)</i> f) Enter time interval (sec) between successive imaged blocks: 10		Start = End =
iii). WAVE> exit to create files		FAAM_YYYYMMDD_R0_
iv). FTP ascii *.PS files from PMSDATA: to PC		Bnnn_2Dx-images.ps
v). Load each into Ghostview or other pdf-converter		Notes on this in instructions
vi). Output as pdf file (720 dpi resolution), appending name prefix of CORE-CLOUD-PHY to converted files		

9) FLOODS> RUN MRFB:[PMS.SPEC2D.AUTO]PROCESS2D_AUTO a) Flight number: Bnnn b) Directory: PMSDATA: c) File generation: <i>Hit enter</i> d) Time correction: <i>Time offset of the 2D data</i> e) TAS: Y f) MFD directory: MFDDATA:Bnnn_MFDX g) Probe number: (1) 2DC (2) 2DP (0) Both <i>0 unless either probe known to be faulty</i> h) Start time: <i>0 if unknown (T/O + 30sec)</i> i) End time: <i>240000 if unknown (Land – 30sec)</i> j) Nominal averaging: 0.2 seconds for conversion to M5 k) Particle type 2DC: 8 if known to be in ice cloud 11 if known to be in water cloud l) Particle type 2DP: 8 if known to be in mixed-phase 8 if unknown m) Coefficient choice: 2 n) Output root filename: PMSDATA:Bnnn_PROC2D	N	NB. an error message may appear, floating point exception, rerun and use time quoted in error message, repeat until successful. X = b309_tas Start = End = Time data processed to = 2dproc files present? *.2dc, *.2dp and *.dat
10) FLOODS> WAVE i) WAVE> WRITE_PROC2D_TO_M5, 'PMSDATA:BNNN_PROC2D.DAT', 'PMSDATA:BNNN_M5PROC2D' ii). exit	N	Use PVWAVE for this section Error message about HDDR file should be ignored. Records =
11) FLOODS> MODIFY a) Modifying datasets: pmsdata:Bnnn_m5proc2D b) Datset: mfddata:Bnnn_mfdX c) New dataset: mfddata:Bnnn_mfdY d) Parameter description file: leave blank to use default	N	X = Y = (X+1)
12) CHECKS: Are 2DC/2DP IWC of comparable magnitude and well-correlated with Nevzorov TWC? <i>In flight_plot, parameters</i> <i>Nevzerov TWC para 605</i> <i>2DC IWC para 1302</i> <i>2DP IWC para 1312</i>	N	Correlated?

CLOUD PHYSICS PROCESSING LOG

Flight number: B309
Date of Flight: 19/07/07

C) PCASP PROCESSING		
Processing Stage	Done?	Comments
1) Complete stage 7) in 2D processing Ensures Bnnn_FSP.DAT containing raw PCASP data is written to directory PMSDATA:	Y	
2) FLOODS> RUN MRFB:[PMS.PCASP]PROCPCASP_NEW a) Flight number: Bnnn b) File name: PMSDATA:Bnnn_FSP.DAT c) Root output name: PMSDATA:Bnnn_PROCPCASP Produces PMSDATA:Bnnn_PROCPCASP.DAT (binary) PMSDATA:Bnnn_PROCPCASP.OUT (ascii) d) Minimum size channel: <i>default = 1</i> <i>If smallest size channel are known to be noisy the value of the highest noise free channel to be entered here</i> e) Calibration volume flow rate: <i>Use the most recent value. (1.15ccs⁻¹ Feb 07)</i> <i>Calibration files to be stored in Exeter</i> <i>Entering zero gives default value = 1.0 cm³s⁻¹</i> f) Time correction: <i>Same value as used in 2D processing stage 9d</i> g) Start time: <i>0 if unknown</i> h) End time: <i>240000 if unknown</i>	Y	Min size = 2 Vol flow rate = 1.0 124700 151100
3) FLOODS> WAVE i).WAVE> write_procpcasp_to_m5, 'pmsdata:Bnnn_procpcasp.dat', 'pmsdata:Bnnn_m5procpcasp' ii). WAVE> exit	Y	Use PVWAVE for this section
4) FLOODS> MODIFY a) Modifying datasets: pmsdata:Bnnn_m5procpcasp b) Dataset: mfddata:Bnnn_mfdX c) New dataset: mfddata:Bnnn_mfdY d) Parameter description file: <i>leave blank to use default</i>	Y	X = _tas Y = X+1 = _tas_pcas
5) CHECKS Are PCASP and JW peaks synchronous? <i>In flight_plot, parameters</i> <i>Neph – total blue scatter.</i> <i>PCASP conc para 1550</i>	N	Data present in “mfd” Merged OK?

Wet Nephelometer Log

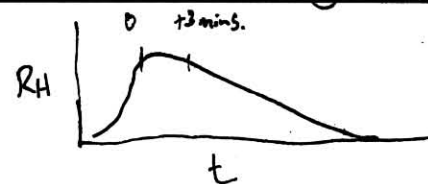
Flight No **B.309**.....

Date **19/7/07**.....

Operator's name: **Aw**.....

Page **1** of **2**.....

GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T _{water}	Remarks
125200	—	8070	32	32	30.6	—	52	Positioning after take off. Preflight OK
130401	R1.1	3500ft	10.8	52	31	↗	52	Start R1.1, ramp up & flow down. Preheater on #1
131010	—	3500ft	9.1	57.2	83.3	—	45	flow down for more RH.
131208			16.8	54	87	↘	45	Good Humidigram 35% - 87 92%. Ramping down + flow up.
131804	—	—	13.3	54.6	83.7	↘	19.9	and R1.1. Wet neph slow to dry out!
13	R							wet neph drying out now in profile ascent.. flew!
132317	R2.1	5700ft	11	22.3	50.4	↗	17.6	Start R2.1. Ramping up/flow down. i-let RH 17%.
132820	"	"	14.7	21	86	↘	45	ramp down/flow up
133200	"	—	16.4	30	67	↘	22.6	Wet neph RH starting to fall now.
133520	R2.1	—	16.5	37.6	56.4	↘	18.1	and run.
134736	R5.1	2600ft	11.9	58.8	41	↗	9	start run ramping up/flow down. bump! inlet RH 55%.
135030	—	—	11.9	62	66	↗	36	System fast to ramp up.
135419	—	—	11.9	67	87	—	45	End run. Humidigram 40% - 87%. Good.
135938	R4.1	5600ft	15	24	92	↘	45	Start R4.1 ramp down/flow up. i-let RH 16.6%.
140400	—	—	15.0	17.8	82	↘	26.6	3-4 minute lag between ramp down command + falls starting.
141151	R4.1	—	15.0	30	43.2	↘	12.4	end run
141645	R5.1	3500ft	11.1	52	42	↗	8.8	start R5.1 ramp up/flow down.
142114	—	—				—	45	end run
142216		2600ft	11.4	64	89	—	45	start run.
	"	—	11.2	65	94		45	end run Humidigram 42 - 94%.



Wet Nephelometer Log

Flight No **B.309**.....

Date 19/7/07

Operator's name:Aw.....

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[illegible]

B309 CVI log

7/19/07 12:53:56 PM
 7/19/07 12:56:43 PM
 7/19/07 1:04:07 PM 13:03 R1 Aerosol
 7/19/07 1:05:42 PM Some cloud in run, small Q
 7/19/07 1:08:46 PM 13:03 R1 Aerosol Some cloud in run, small Q
 7/19/07 1:08:48 PM 13:03 R1 Aerosol Some cloud in run, small Q
 7/19/07 1:09:11 PM 13:08 PCASP flow adjust
 7/19/07 1:09:13 PM
 7/19/07 1:18:57 PM EOR1 13:18:04
 7/19/07 1:19:24 PM P1 13:19:00
 7/19/07 1:19:26 PM
 7/19/07 1:23:43 PM R2 @ 13:23:17
 7/19/07 1:24:48 PM @ 13:23:17 R1 @ 2700ft R2@5700ft
 7/19/07 1:25:48 PM @ 13:23:17 R1 @ 2700ft R2@5700ft larg diff between cnc&pcasp, cnc
 1500 higher??
 7/19/07 1:28:53 PM 13:28 cnc temp light flashing, was ok at lower level
 7/19/07 1:35:56 PM eor21 13:35:20 counts closer by eor.
 7/19/07 1:37:31 PM p2 desecnt 13:36:59
 7/19/07 1:45:37 PM 13:44:52 P2 recommensed, interupted for traffic
 7/19/07 1:48:06 PM interupted for traffic 13:47:R3 2600ft
 7/19/07 1:53:13 PM R3 below cloud base.
 7/19/07 1:54:38 PM eor3.1 13:54:19 no cloud
 7/19/07 1:55:26 PM p3@ 13:55:01
 7/19/07 1:58:49 PM 13:57:53 R4 5700ft
 7/19/07 2:00:46 PM 5700ft new start time R4 13:59:58
 7/19/07 2:12:17 PM 13:57:53 R4 5700ft new start time R4 13:59:58 eor 4 @14:11:51
 7/19/07 2:13:03 PM Another low level south leg to be added as no real convection to
 go for
 7/19/07 2:14:14 PM p4 decent 14:13:48 to 2600ft
 7/19/07 2:17:08 PM r5 @3500ft 14:16:45
 7/19/07 2:18:06 PM
 7/19/07 2:18:09 PM
 7/19/07 2:18:11 PM
 7/19/07 2:18:26 PM in occasional cloud
 7/19/07 2:21:57 PM cloud 14:21:21 p5 to 2500ft
 7/19/07 2:23:15 PM 14:22:16 r6 scurting some cloud underside.
 7/19/07 2:30:55 PM eor 6 14:29:
 7/19/07 2:31:34 PM p6 14:30:50. turning for run over supersites.
 7/19/07 2:34:34 PM eop6 14:34:36
 7/19/07 2:36:07 PM R7 5700ft 14:35:35
 7/19/07 2:45:37 PM eor7 14:45:10 set up for supersites

Flight:

B309

KEY

Not Fitted

Fitted, Not Operated



Duff Data



Minor Problems



OK

Thermometers

Cabin Temperature:

Heimann:

Deiced Temp:

Non-deiced Temp:

Hygrometers

FWVS:

General Eastern:

Johnson Williams:

Nevzorov:

Total Water Probe:

Cameras

Downward Facing:

Forward Facing:

Rearward Facing:

Upward Facing:

Navigation + Aircraft

Cruciform GPS:

GIN Applanix:

INU Honeywell:

Radar Altimeter:

RVSM IAS:

RVSM Static Pressure:

XR5 GPS:

Report Created 20/08/2007
17:27:47

Misc Core

AMTG:

AVAPS:

Cabin Pressure:

Fax machine:

Printer:

S9 Static Pressure:

Satcom C:

Satcom H:

Turb Centre-Static:

Turb Left Right:

Turb Up-Down:

Turb Horizontal Chk:

Turb Vertical Chk:

Weather Radar:

DLUs:

DLU AERACK:

DLU BBR Lower:

DLU BBR Upper:

DLU Core Chem:

DLU Core Consoles:

DLU Port Aft:

DLU Port Fwd:

DLU Stbd Fwd:

Radiometers

Lower:

BBR (clear) Lower:

BBR (IR) Lower:

BBR (red) Lower:

Upper:

BBR (clear) Upper:

BBR (IR) Upper:

BBR (red) Upper:

ARIES:

DEIMOS:

IR Camera:

JNO2 Lower:

JNO2 Upper:

JO1D Lower:

JO1D Upper:

MARSS:

SHIMS Lower:

SHIMS Upper:

SWS:

TAFTS:

Last Updated:

Cloud Probes

2DC:

2DP:

FFSSP:

PCASP:

ADA:

CCN:

CDP:

CIP 100:

CIP 25:

CPI:

CVI:

SID1:

SID2:

Aerosol

CPC 3025A:

Filters 47mm:

Filters 90mm:

Neph - Dry:

Neph - Wet:

PSAP:

AMS:

CPC 3025 (AMS)

INC:

VACC:

CPC 3010A (CVI):

Chemistry

CO Aerolaser 5002:

NOx TE42C:

Ozone TE49C:

Ozone TE49:

SO2 TE43C:

TDLAS (NIR) CH4:

TDLAS (NIR) CO2:

FAGE:

Formaldehyde:

NOxy:

ORAC:

PAN:

PERCA:

Peroxide:

PTRMS:

TDLAS (1C):

WAS Bags:

WAS Bottles:

Misc Non-Core

CASI/ATM:

LIDAR:

LTI:

SAW Hygrometer:



01/08/2007 12:53:09

Faults / Incidents Log

Flight No. B309

Date: 19/07/2007

Instruments

Cloud physics: screen failure, problem cleared in flight.
FFSSP – uncertainty of operation

Aircraft

None

Satcom-H Calls

Hornisgrinde

Post Flight - Turb Probe Water Traps

1. Indicate Amount of Water: a) Nil b) 1-2 drops c) ¼ full or more d) Ice present
2. Emptied by:
3. Dried by:

MISSING LOG SHEETS:

The following log sheets are not available for flight B309:

Log	Reason
Pre-flight log	No log available
De-brief	No log created: Phil Brown "I don't think I did one for B309. If I had, it probably wouldn't have said much more than is already in my main log notes."
Core Chemistry	no In Flight log except in cases of instrument problems
VACC	VACC operator does not create a log sheet
PSAP log	No log as PSAP pump/filter info included on Flight Summary page
AMS	Log only of interest to instrument operator so no copy left with FAAM
CPI	CPI operator does not create a log sheet

Document control

Revision	Date	Author	Comments
r0	29 Aug 2007	Doug Anderson	Initial version missing the above noted logs
r1			
r2			

VIDEO RECORDINGS:

2 x Rearward Facing Cameras

2 x Forward Facing Cameras

Digital8 video recordings from this flight reside with :

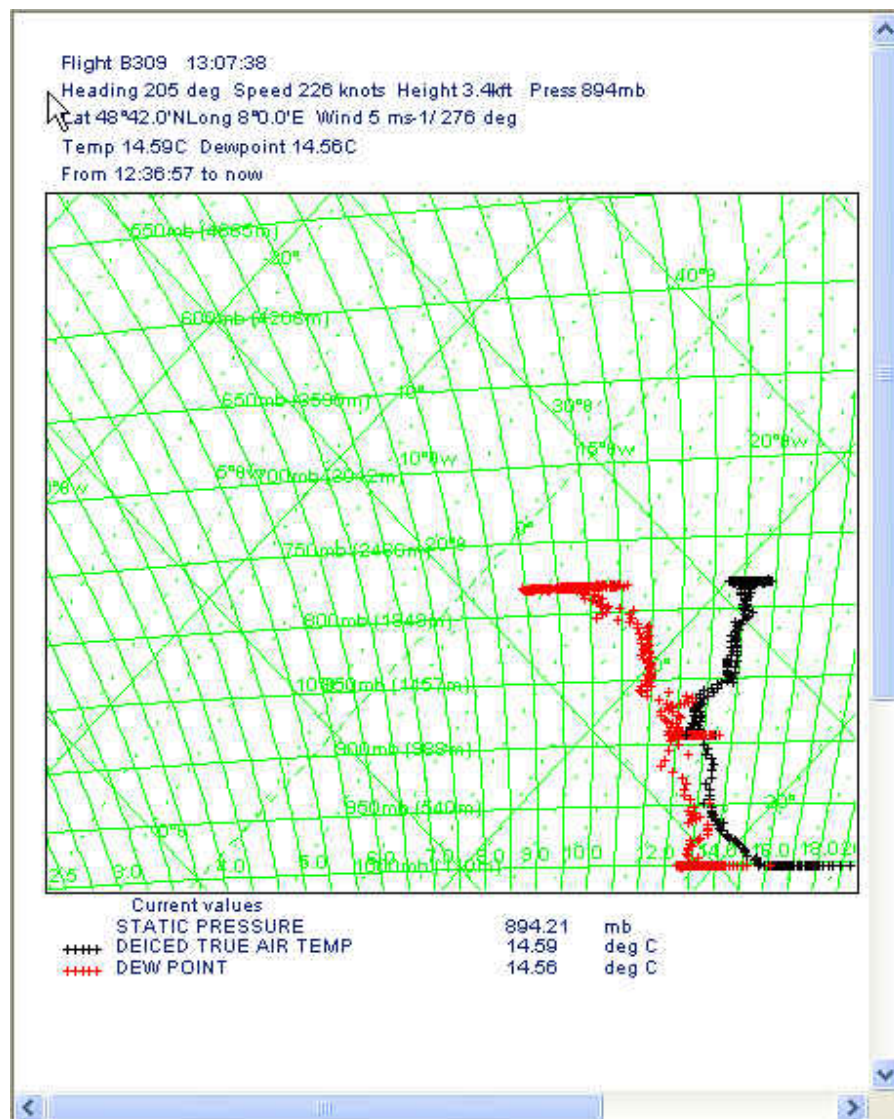
Professor Stephen Mobbs

Director, National Centre for Atmospheric Science
Environment Building, School of Earth and Environment
University of Leeds, Leeds LS2 9JT, United Kingdom

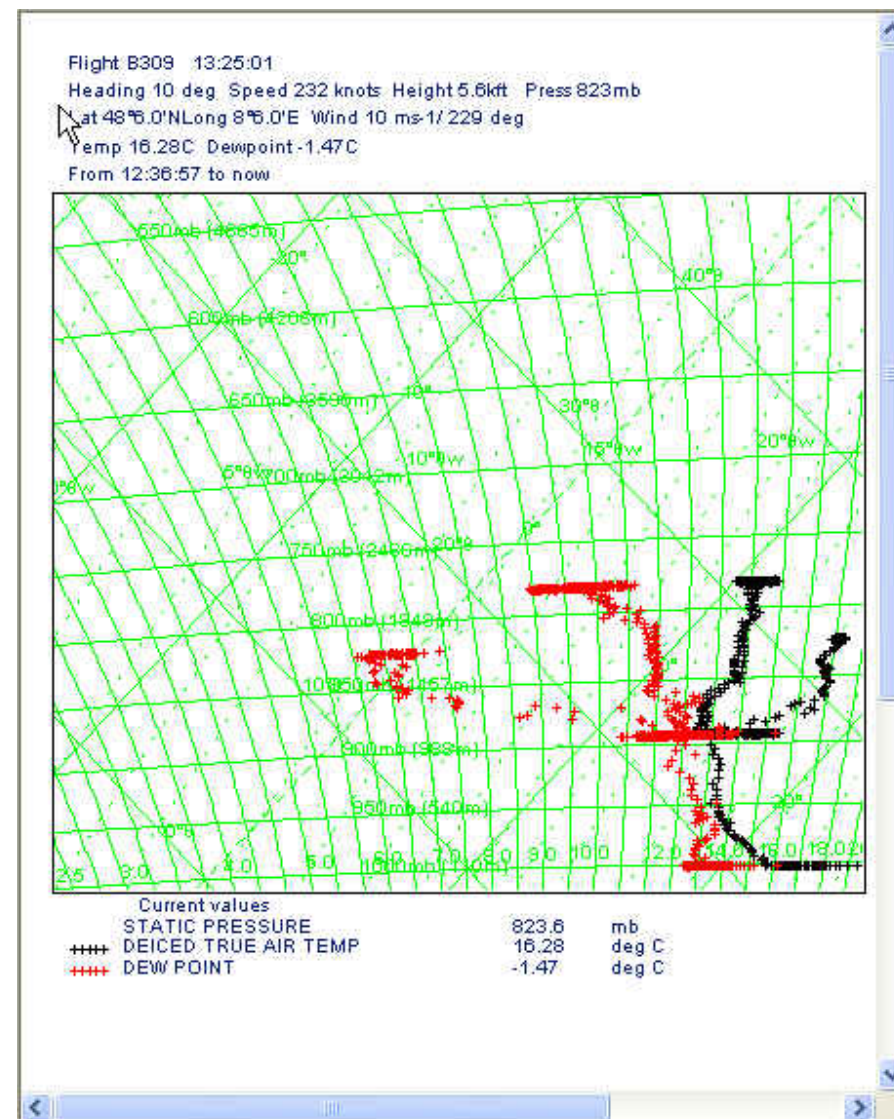
Tel: +44 (0) 113 3435158 / 6408

Fax: +44 (0) 113 3436499

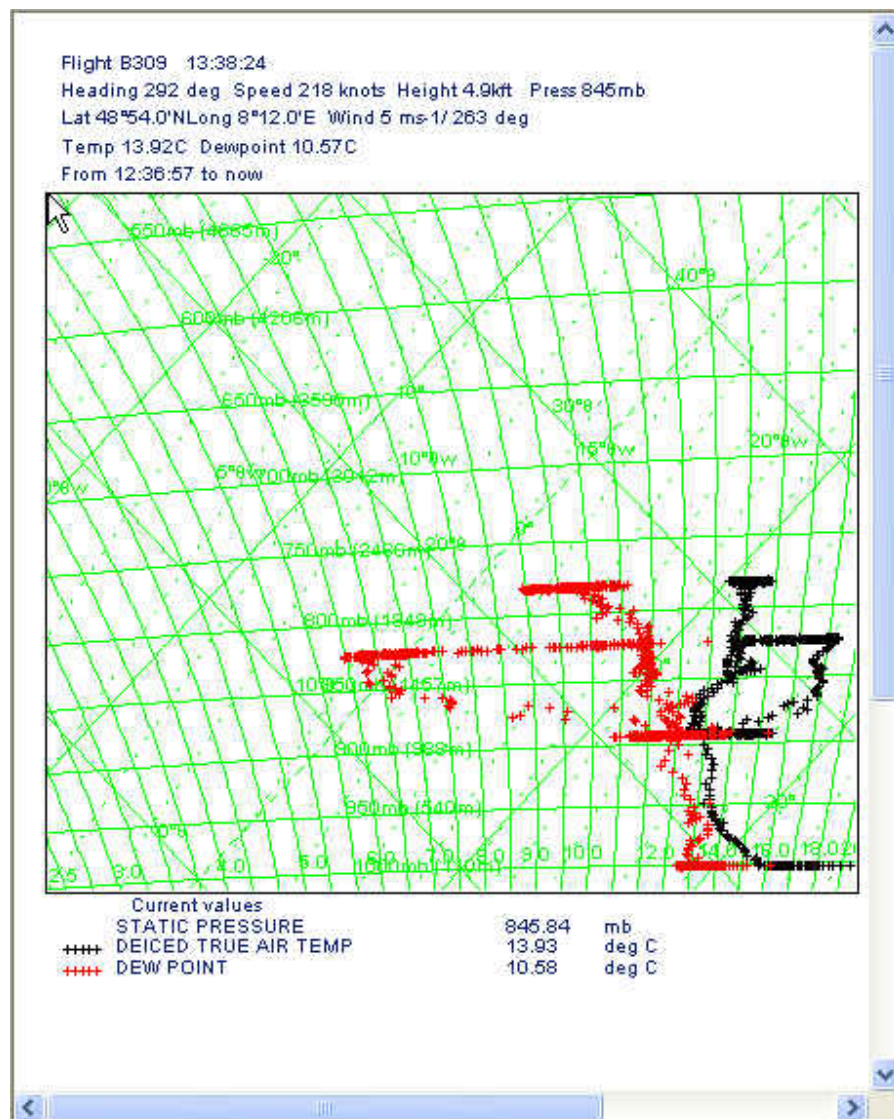
E-mail: stebbs@faam.ac.uk



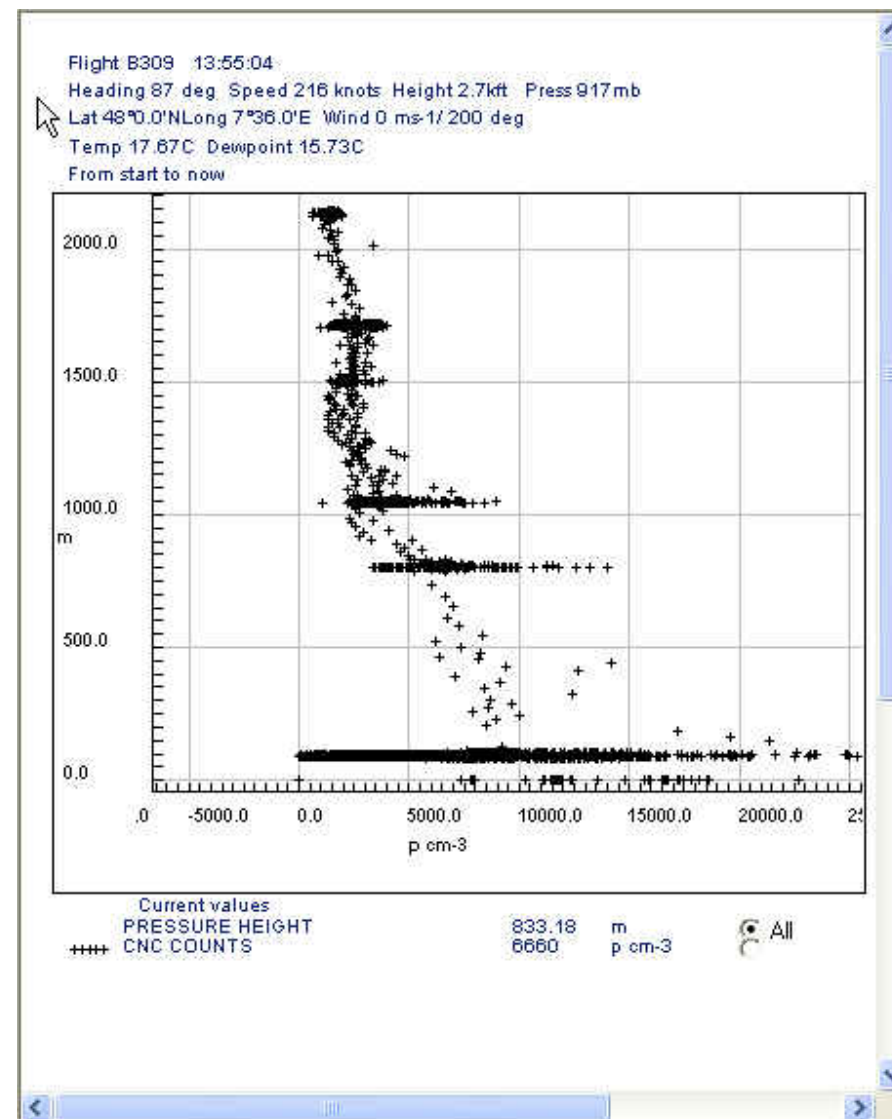
B309 initial climbout profiles



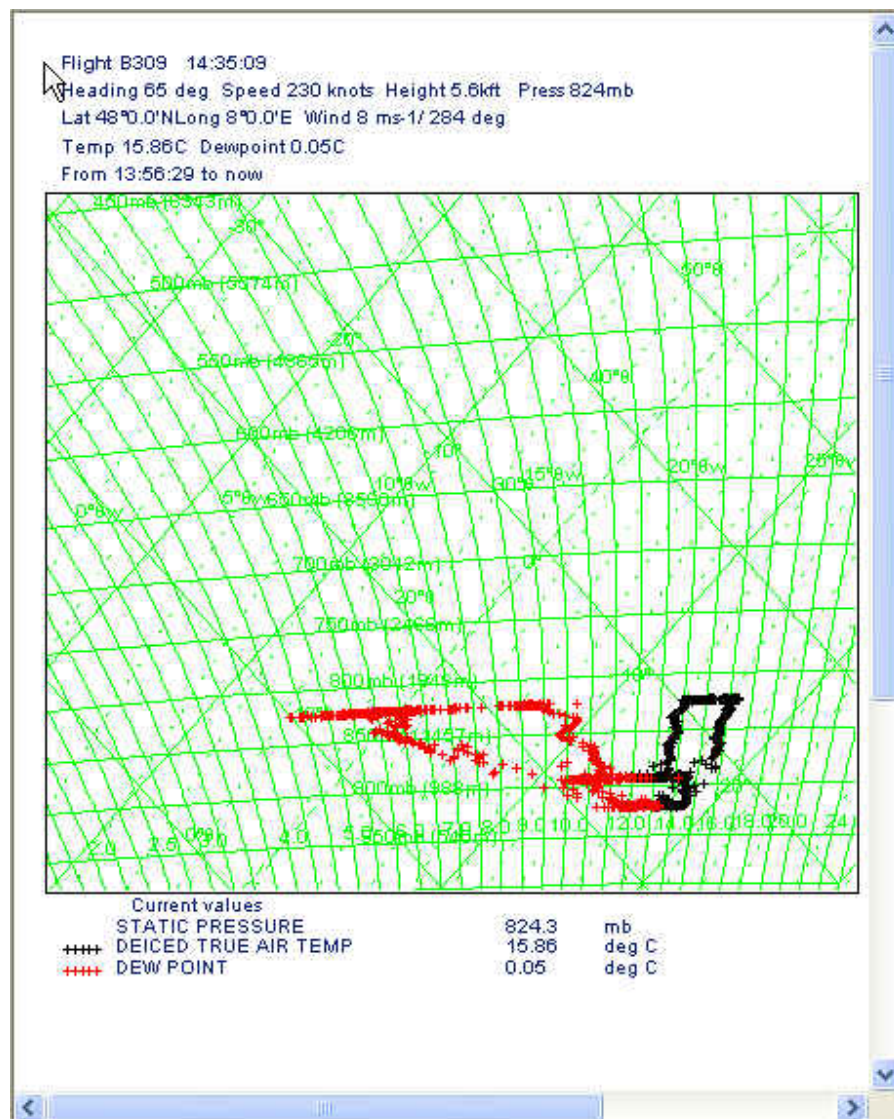
B309 profile at S end of valley



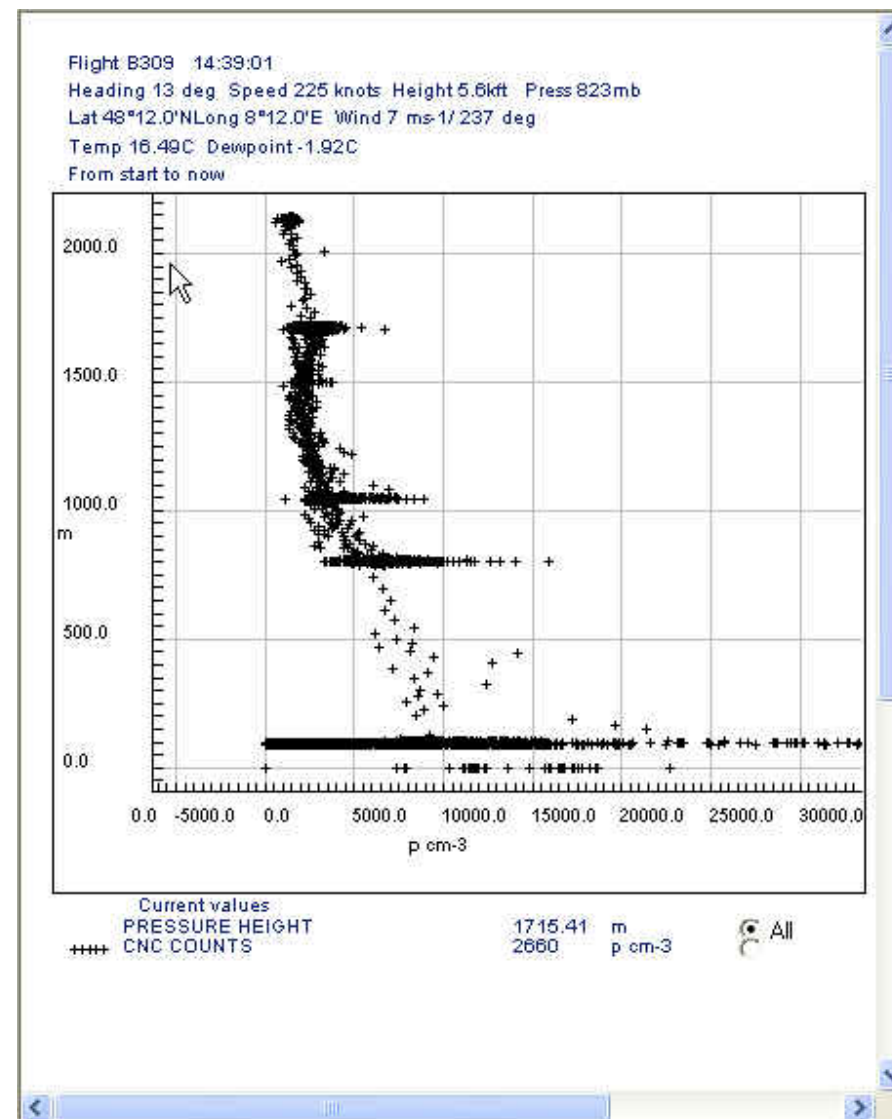
B309 profiles at N end of BF leg



B309 CNC profiles



B309 profile 5N and 6S



B309 CNC profiles 2